

What is claimed is:

1. A method for detecting scene cuts in a video bitstream comprising the steps of:

5 determining a number of coded macroblocks for each of a plurality of potential scene cuts;

determining a number of predicted macroblocks for each of the plurality of potential scene cuts;

10 determining a ratio of the number of coded macroblocks to the number of predicted macroblocks for each of a plurality frames corresponding to the plurality of potential scene cuts;

selecting a frame having a desired ratio;

comparing the ratio to a threshold value; and

15 detecting a scene cut upon determining that the ratio satisfies the threshold value.

2. The method of claim 1, further comprising the step of processing a group of frames, wherein each frame includes two fields, and wherein the group of frames comprise a sub-group of pictures and the video bitstream includes a plurality of sub-groups of pictures.

20 3. The method of claim 1, further comprising the step of determining whether a first frame is an I or P picture, upon determining that the first frame is not an I or P picture, advancing to a next sub-group of pictures.

25 4. The method of claim 1, further comprising the step of determining whether the first picture is an I picture and whether a previous picture was an I or P picture, upon determining the first picture to be a P picture or the previous picture to be a B picture, advancing to a next sub-group of pictures.

30 5. The method of claim 1, further comprising the steps of:
initializing the number of predicted macroblocks to zero for each frame;
and
initializing the number of coded macroblocks to zero for each frame.

6. The method of claim 1, wherein at least one of the potential scene cuts exist between interlaced fields of a frame.

7. The method of claim 6, wherein the step of determining the number of predicted macroblocks further comprises the steps of:

setting the number of predicted macroblocks equal to a number of forward predicted macroblocks for each potential scene cut, upon determining a corresponding field to be a first field in a frame; and

setting the number of predicted macroblocks equal to a number of backward predicted macroblocks for each potential scene cut, upon determining the corresponding field to be a second field in the frame, wherein the frame includes the first and the second fields.

8. The method of claim 6, wherein the scene cut corresponds to the selected field.

9. The method of claim 1, wherein the desired ratio is a minimum ratio among all ratios determined.

10. The method of claim 1, wherein the potential scene cuts exists between the frames of a sub-group of pictures.

11. A method for detecting scene cuts in an MPEG video bitstream comprising the steps of:

determining a number of coded macroblocks for each of a plurality of potential scene cuts, wherein the plurality of potential scene cuts exists between a plurality of frames and between a plurality of fields in each frame; setting a number of predicted macroblocks equal to a number of forward predicted macroblocks for each of the plurality of potential scene cuts, upon determining a corresponding field to be a first field in a frame, and setting the number of predicted macroblocks equal to a number of backward predicted macroblocks for each of the plurality of potential scene cuts, upon determining

the corresponding field to be a second field in the frame, wherein the frame includes the first and the second fields;

determining a ratio of the number of coded macroblocks to the number of predicted macroblocks for each of a plurality of fields corresponding to the plurality of potential scene cuts;

selecting a field having a lowest ratio among the plurality of fields;

comparing the lowest ratio to a threshold value; and

detecting a scene cut upon determining that the lowest ratio satisfies the threshold value, wherein the scene cut corresponds to the selected field.

12. The method of claim 11, further comprising the step of processing a group of frames, each frame including two fields, wherein the group of frames comprise a sub-group of pictures and the video bitstream includes a plurality of sub-groups of pictures.

13. The method of claim 11, further comprising the steps of:
determining whether a first frame is an I or P picture; and
advancing processing to a next sub-group of pictures, responsive to a determination that the first frame is not an I or P picture.

14. The method of claim 11, further comprising the steps of:
determining whether the first picture is an I picture;
determining whether a previous picture was an I or P picture; and
advancing processing to a next sub-group of pictures, responsive to a determination the first picture to be a P picture or the previous picture to be a B picture.

15. The method of claim 11, further comprising the steps of:
initializing the number of predicted macroblocks to zero for each field;
and
initializing the number of coded macroblocks to zero for each field.

16. The method of claim 11, wherein at least one of the plurality of potential scene cuts exist between interlaced fields of a frame.

17. A program storage device readable by machine, tangibly embodying a program of instructions executable by the machine to perform method steps for detecting scene cuts in a video bitstream, the method steps comprising:

determining a number of coded macroblocks for each of a plurality of potential scene cuts;

determining a number of predicted macroblocks for each of the plurality of potential scene cuts;

determining a ratio of the number of coded macroblocks to the number of predicted macroblocks for each of a plurality of frames corresponding to the plurality of potential scene cuts;

selecting a frame having a desired ratio;

comparing the ratio to a threshold value; and

detecting a scene cut upon determining that the ratio satisfies the threshold value.

18. The method of claim 17, wherein the plurality of potential scene cuts exist between interlaced fields of a frame.

19. The method of claim 18, wherein the step of determining the number of predicted macroblocks further comprises the steps of:

setting the number of predicted macroblocks equal to a number of forward predicted macroblocks for each potential scene cut, upon determining a corresponding field to be a first field in a frame; and

setting the number of predicted macroblocks equal to a number of backward predicted macroblocks for each potential scene cut, upon determining the corresponding field to be a second field in the frame, wherein the frame includes the first and the second fields.

20. The method of claim 18, wherein the scene cut corresponds to the selected field.

21. The method of claim 17, wherein the desired ratio is a minimum ratio among all ratios determined.

22. An apparatus for detecting scene cuts in a video bitstream comprising:

5 means for determining a number of coded macroblocks for each of a plurality of potential scene cuts;

means for determining a number of predicted macroblocks for each of the plurality of potential scene cuts;

10 means for determining a ratio of the number of coded macroblocks to the number of predicted macroblocks for each of a plurality frames corresponding to the plurality of potential scene cuts;

means for selecting a frame having a desired ratio;

means for comparing the ratio to a threshold value; and

15 means for detecting a scene cut upon determining that the ratio satisfies the threshold value.

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